AVIATION

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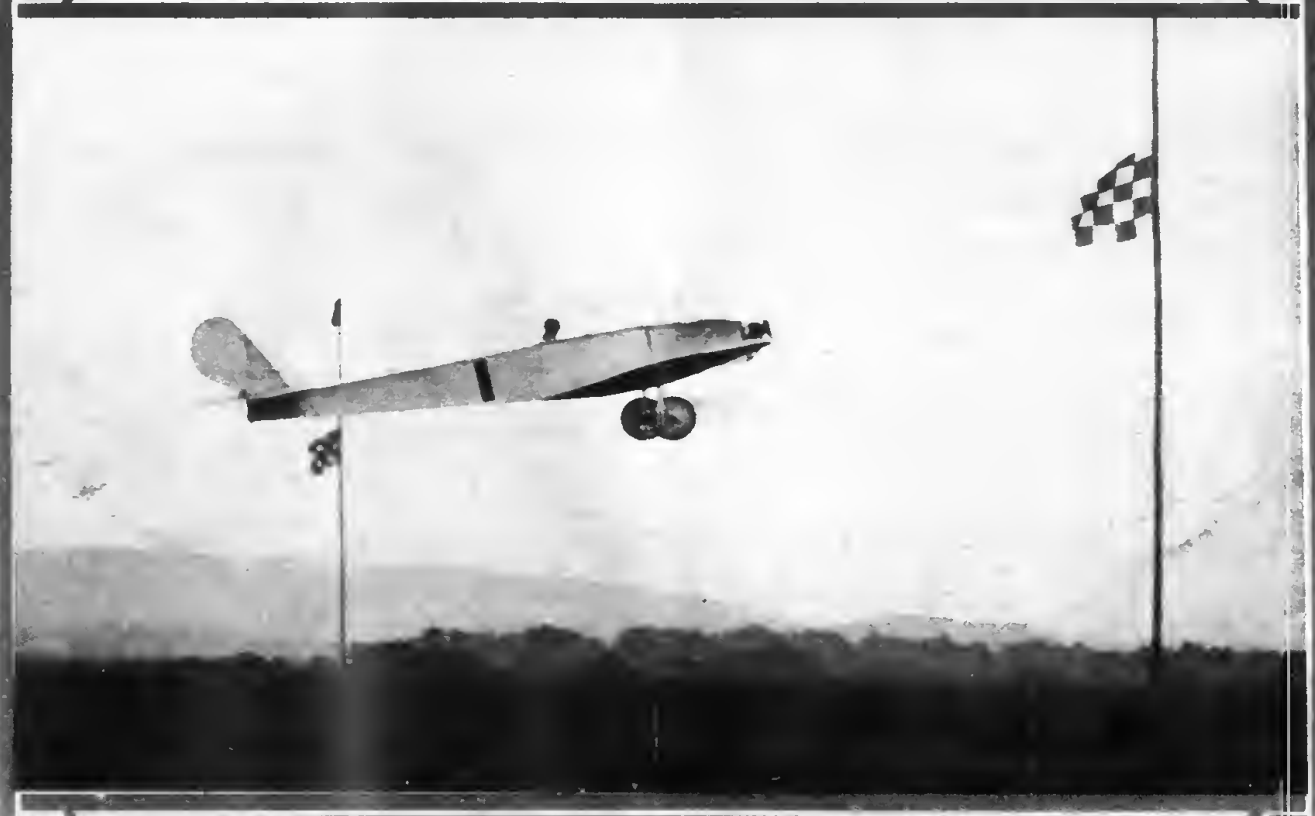

Light Plane Racing in England—Trying for the climbing test

VOLUME XVIII

NUMBER 2

SPECIAL FEATURES

AMERICA'S FIRST AVIATOR SENATOR

INVESTIGATION OF THE LAMPERT COMMITTEE

MODERN AIRPLANES VS. WAR SURPLUS EQUIPMENT

MORE DESCRIPTIONS OF NEW FRENCH PURSUIT PLANES

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VOL. XVIII. NO. 2

Published every Monday

CONTENTS

Editorials	41	Development of the Aerial Ambulance	48
Recent French Pursuit Airplanes Described	42	Canadian Government Requirements for Aircraft	49
Amsterdam-Batavia Flight Reviewed	45	The Investigation of the Lampert Committee	50
America's First Aviator Senator	46	New DeHavilland Air Liner	51
More World Records Broken Abroad	46	Airports and Airways	52
Modern Planes vs. War Surplus Equipment	47	United States Air Forces	54

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AVIATION

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VOL. XVIII JANUARY 12, 1925 No. 2

Aircraft Carriers

THE construction program of the Navy's new aircraft carriers seems to be dragging at anchor. So many changes have already been made in their original designs as a result of practical experiments with the U.S.S. Langley that it will be nearly 1928 before the new carriers will be ready for service.

The Lexington and the Saratoga—as they will be called—are to cost about $25,000,000 each. One of them is expected to carry 90 planes, and the other 84. Fifty per cent spares are to be carried besides. These 250 planes with spares will cost approximately $10,000,000. In other words, the two new aircraft carriers will represent an outlay of about sixty million dollars. As three years is reckoned as the average life of a naval plane's usefulness, there will have to be added to this sum a little over $3,000,000 each year for depreciation.

In view of the huge monetary outlay this latest development of our fleet air arm represents, those interested in air power would do well to make a thorough study of the practical utility of aircraft carriers. Of course, the Navy needs them and wants them. This is natural enough, seeing that such vessels afford about the only means for keeping a sufficient number of planes at sea for the protection of the fleet. The few gun spotters and combat planes—two per capital ship—which the fleet carries on board would not be sufficient to stave off the attack of a determined enemy air force composed of bombing and pursuit planes. An air force can only be defeated by another air force.

Unfortunately, confidence in the aircraft carrier as a workable floating airdrome is not great in aeronautical circles. In fact, the attitude is quite the reverse. The difficulties involved in flying off and landing on the deck of a carrier rolling and pitching in a fairly heavy sea are so great that many there question whether it will ever be practicable to do so under war conditions. Besides, the fact that an aircraft carrier must be headed into the wind to enable its planes to take off, introduces some novel and highly intricate problems in naval tactics, in particular with regard to protection against submarines. Then, it must be remembered that if the 90 planes were in the air at one time, it might take two or three hours to get them all back under decks, for a few minutes would be required for the landing and removing of each plane.

These operational problems may be solved as others have been overcome. But there is one side to the aircraft carrier that will always be open to attack: the flush deck extending from stem to stern, which makes it the one ship in the fleet easiest to hit with aircraft bombs. Consequently, its destruction will be the first object of the enemy. As even a small fragmentation bomb exploded on its deck would render it useless for landing and take-off purposes, and so prevent the recovery of aircraft in the air, it will be seen that without actually sinking an aircraft carrier its value to the fleet can easily be annihilated.

The heroes who were ready to sacrifice their lives in bringing down Zeppelins during the late war will some day be escalated by pilots who will set out to "get" an aircraft carrier. And as a single bomb may turn an aircraft carrier into a useless monument of naval architecture, it would seem a high price to pay $60,000,000 for the protection of the fleet by means of such vessels. We prefer to think what could be done with this sum in developing ocean going flying boats for attacking naval vessels rather than protecting them.

The French and their "McCook Field"

THAT the difficulties of the American aircraft industry with the Air Service Engineering Division at McCook Field are not a local product was shown by C. G. Grey of *The Aeroplane*, who pointed out in these columns that to the British aircraft trade the Royal Aircraft Factory at South Farnborough represented during the war much the same Juggernaut as McCook Field does to our own industry. And now there comes to hand an extremely interesting report of the Finance Commission of the French Parliament, which shows that *France*, too, has her "McCook Field problem."

Deputy Henry-Paté, in presenting this report to the French Chamber of Deputies, hinted at this situation in unmistakable terms when he said:

"In aeronautics, more than anywhere else, technical progress must be strived for and encouraged. Greater safety for air passengers and for our military pilots, greater efficiency for our air lines, and the maintenance of our dominance in military aviation—all these require ample and ceaseless technical progress as well as appropriations for the necessary research work.

"But I should not like to see the 'Service Technique' (the Engineering Division of the French Air Force) install itself as the official science. I cannot overlook the fact that official science hampers and disturbs private development work.

"The 'Service Technique' has a large and useful role to fulfill: that of acting as a research engineer, and collecting and interpreting technical documents dealing with research, laboratory experiences, statistics and data. By means of the documents which it makes available to the practical technicians of the industry, the results which it obtains from its own research work, and the assistance of its well equipped laboratories and testing stations which it places at the disposal of these technicians, it must aid private research in a spirit of full confidence.

"But it must not endeavor to impose with partisanship its own conceptions or hamper by means of too minute requirements the free development work of the private designing staffs and factories.

"If the 'Service Technique' will offer its advice and support under these conditions I am certain that French aeronautics will make even more rapid progress."

Recent French Pursuit Airplanes Described

Notable Preponderance of Duralumin Built Strut-Braced Monoplanes

By LADISLAS D'ORCY

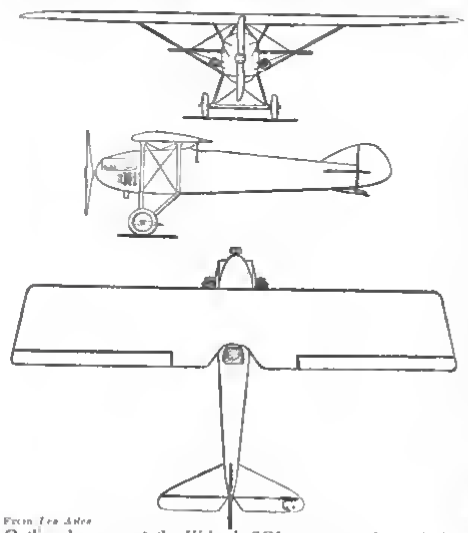
(Continued from last issue)

The Wibault Pursuit Planes

There are two Wibault pursuit planes the Model 3, with 300 hp. Hispano-Suiza engine, built for the 1921 program, and the Model 7, with 400 hp. Jupiter engine, which is a development of the first named. The Model 3 is of particular interest because Georges Barbot, Dewoitine's test pilot, spent some time last spring in Japan where he demonstrated this ship to the Japanese air authorities.

The Wibault 3C1 is a high altitude single-seater pursuit machine which, with the exception of the covering of wing and fuselage is entirely built of duralumin.

The wing is slightly raised above the fuselage in the so-called "parasol" arrangement, which gives the pilot excellent visibility in all directions. The wing is of fairly thick section and tapers in thickness, but not in chord, toward the tips. The structure of the wing consists of two duralumin spars of lattice work construction, with riveted duralumin tube ribs. The ribs are all of equal section, except in the tapering portions of the wing, which simplifies production problems.



From *Les Ailes*

Outline drawings of the Wibault 3C1 pursuit airplane (300 hp Hispano with Rateau supercharger)

The ailerons are of the non-balanced type and are very long and narrow.

The wing is braced to the fuselage in the center by means of a cabane of steel tubes, while two sloping steel struts brace the overhanging portion of the wing to the bottom fuselage longerons. The wing struts abut on the wing where the parallel thickness merges into the tapering section. The safety factor of the wing is 12, corresponding to a load on the wing of 55,000 lb.

The fuselage is built up of tubular duralumin longerons and cross-pieces, which are assembled by means of stamped steel fittings of the sleeve type. Some of the bracing members which are heavily stressed are steel tubes. The fuselage is fabric covered and is extremely well stream-lined. The two synchronized machine guns which form the armament of the ship are carried inside, so as not to create parasite resistance.

The 300 hp. Hispano-Suiza engine is fitted with a Rateau supercharger for high altitude flying. The fuel tanks are armored against machine gun fire and allow for three hours flight at full speed. The final system is of the pressure type. Two streamlined Lamblin radiators are mounted on the sides of the fuselage.

In view of the high altitudes at which this machine is called upon to operate the cockpit is equipped with an oxygen inhalation device. It is also fitted with a parachute and a light-weight camera.

The tail surfaces are built of flattened duralumin tubes, riveted together and covered with fabric. Neither the elevator nor the rudder are balanced.

SPECIFICATIONS OF THE WIBAULT 3C1 AIRPLANE

	300 hp. Hispano Suiza Engine		
Span	35 ft. 3 in.	Weight empty	1988 lb.
Length	26 ft. 3 in.	Weight loaded	3124 lb.
Height	10 ft.	Speed at 1000 ft.	152 mi./hr.
Wing area	248 sq. ft.	Speed at 18,000 ft.	178 mi./hr.
Wing chord	7 ft.	Ceiling (theor.)	24,000 ft.
Horsepower	300.	Range	450-500 mi.

Externally the Wibault 7 looks very much like the Model 3 of this constructor, except for the 400 hp. Jupiter radial engine, which required a slight rounding off of the fuselage to fit it in the general streamline. As this engine is of the air-cooled type, naturally no radiators are carried.

Constructionally, however, the Model 7 differs radically from its predecessor. Not only is the ship an al-metal job, but the whole structure has been greatly simplified with a view to facilitating quantity production and repair in factories devoted to structural metal work and without requiring any special machine tools. For this reason duralumin tubing has almost entirely been supplanted by sheet duralumin in U and L sections, and straight or bent gusset plates take the place of the sleeve fittings used in the fuselage of Model 3.

The wing spars are full box girders, while the ribs are plain sheets, hollowed out for lightness. The covering of the wing, also of duralumin, is of the type illustrated herewith, the sheet lapping around the top of the rib and being secured by rivets. As the latter are all on the outside of the wing covering, they are easily accessible for inspection and repair, which is not generally the case in metal covered wings. The tail surfaces follow the constructional principles of the wing; the horizontal stabilizer is adjustable in flight. Aileron control is by means of metal rods.

The landing gear, of the axleless type, is somewhat reminiscent of the Curtiss Pursuit plane and is sprung on rubber discs mounted externally.

The motor is mounted on a hinged plate which may be swung clear of the fuselage by removing four bolts and disconnecting the fuel lines and motor controls.

The pilot's seat and the rudder bar are both adjustable.

Model 7 weighs empty 360 lb. less than Model 3, owing largely to the light weight of the Jupiter, although some weight has also been saved by improved construction methods. The useful load is the same. Performance data on this ship are not yet available.

The Dewoitine Pursuit Planes

Although M. Dewoitine has produced four types of pursuit planes during the last two years, these may in fact be reduced to two major types, the monoplane (of which there are three subtypes) and the biplane.

The three Dewoitine pursuit monoplanes are all of the strut braced, raised wing type, which gives the pilot excellent visibility in all directions. The ship first in date, Model D1, has a 300 hp. Hispano-Suiza, Model 9, a 400 hp. Jupiter, and Model 12, a 450 hp. W type Lorraine-Dietrich. Outside of the difference in engine mounting, the three ships differ only in minor particulars. In the D1 and the D9 the wing is built in two halves which are joined at the cabane, while in the D12 the wing is composed of three parts, the center section being carried on a cabane of flared-out struts.

The features described below are common to all three types, except where otherwise specified.

The wing is mounted in parasol fashion on a very small and well faired cabane. It is braced to the bottom longerons of the fuselage by faired duralumin tubes which are carried in hinged fittings and incorporate a gear for adjusting their length. The wing spars are I section girders, built up of 1 mm sheet duralumin throughout, except that the thickness of the vertical wall varies from one to five laminations and these are riveted together. The flanges are riveted to this wall over angle section strips, all the material being duralumin. The wing spars, seen in front elevation, form two strongly flattened out lozenges, for the wing tapers in thickness not only toward the tips but toward the center section as well. The ribs are of lattice girder construction, using duralumin tubes riveted together over special sleeve fittings.

The weight of the wing is 330 lb., including 20 lb. for the bracing struts, which is a remarkably low figure considering that the wings withstood a sand load equivalent to a safety factor of 10 without buckling, as did, incidentally, the fuselage.

The ailerons are very narrow and have a comparatively small area, but as they are inclined to the transverse axis of the machine they are probably very effective.

The fuselage is a duralumin shell which is riveted to sheet duralumin bulkheads and four main longerons. A number of false longerons insure local stiffness. The skin of the shell is 0.5 mm. thick on the D1, and 0.8 mm. on the D12. The tail surfaces are all internally braced and are of a construction similar to that of the wings. The horizontal stabilizer is adjustable for incidence in flight. The weight of the fuselage, including the tail surfaces and the engine bed is only 187 lb.

On the Models 1 and 12 the engine is carried on U section duralumin bearers, and Lamblin strut type radiators are mounted on the forward landing gear struts. On Model 9, which uses the 9 cylinder radial Jupiter, the engine is fixed to a steel plate and braced with duralumin tubes.

The fuel tank allows for 3 hr. flight at full speed, and is mounted aft of the motor from which it is separated by a fire wall. The fuel system is of the pressure type, with two independent pumps. A Letombe self-starter is fitted.

The landing gear is of the customary V type with streamlined duralumin struts and rubber sprung wheels.

The armament consists of two synchronized machine guns and 800 rounds of ammunition.

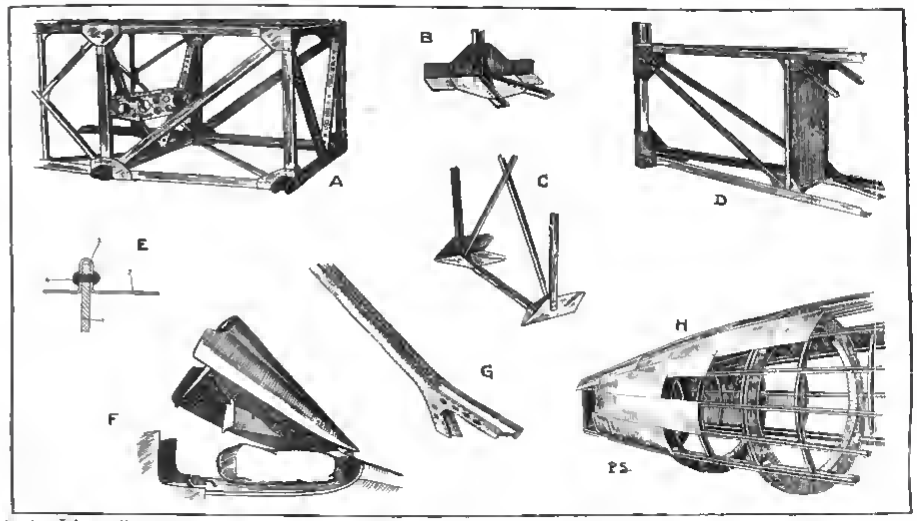
SPECIFICATIONS OF THE DEWOITINE D1 PURSUIT PLANE

	300 hp. Hispano-Suiza Engine		
Span	34 ft. 8 in.	Speed at ground	161 mi./hr.
Length	24 ft. 9 in.	Speed at landing	59 mi./hr.
Height	8 ft. 2 in.	Speed at 14,500 ft.	150 mi./hr.*
Wing area	215 sq. ft.	Climb to 18,100 ft.	15 min. 6 sec.
Weight empty	1800 lb.	Ceiling, absolute	29,700 ft.
Weight loaded	2726 lb.		

*Without supercharger

The Dewoitine D9 (380 hp. Jupiter) weighs empty 1870 lb., and loaded 2915 lb. The weight empty of the D12 (450 hp. Lorraine) is 2255 lb., and the weight loaded 3333 lb. The wing area is 243 sq. ft. Performance figures are not available.

The pursuit biplane built by the Dewoitine company, known as Model 15, is equipped with a 450 hp. V type Hispano-Suiza engine. The ship is an unequal biplane of single bay



Courtesy *L'Aeronautique*

Constructional details of French pursuit planes—Wibault 7: A, fuselage at parallel section; B, C, Fuselage joints; D, fuselage at tail section, E, metal covering system for wings (1, rib; 2-3, metal skin; 4, rivet) — Hanriot 37: F, hinged fairing with head rest of cockpit, containing parachute; G, duralumin wing bracing strut — Dewoitine D12. H, fuselage construction

type, with overhanging top wing and double N type cabane. Only the top wing has ailerons.

In the design of this ship special pains were taken to make it as simple of production and replacement as possible. For this reason the wing curve is—unlike on the D1 and its two subtypes—of constant section, all the ribs being interchangeable. The beams of the top wing are square duralumin sheet box girders, while the bottom wing has square duralumin tubes instead. The ribs are of duralumin tubing. Both wings are built in two halves. In the top wing they are bolted to each other, while in the bottom wing they are secured to the lower fuselage longerons. The wings are fabric covered.

The fuselage is built of duralumin tubing, assembled by means of welded steel sleeves and cross braced by wire. Four main longerons and suitably spaced cross pieces form the main structure, which is faired off into a streamline body by means of two built up false structures, one each to the top and bottom of the fuselage, which can promptly be removed for inspection and repair. Aft of the motor compartment, which is covered with aluminum, the fuselage is fabric covered.

The tail surfaces require no special comment. Their structure is of duralumin, and neither elevator nor rudder are balanced.

In the pilot's cockpit provision is made for installing an oxygen inhalator for high altitude work, a Duchatelier photographic apparatus, heating apparatus and a parachute. The armament consists of two synchronized Vickers machine guns, which are mounted in the fuselage, and of two Darne machine guns, mounted on the top wing. Each gun is equipped with 500 rounds of ammunition.

The 450 hp. Hispano is carried on square tube bearers of duralumin, suitably braced by tubular struts. The fuel system is of the pressure type, with two tanks. One of these is in front of the pilot's seat, the second is underneath it. Both appear to be armor plated and both can be released in flight. Lamblin radiators of the 1924 strut type are used, mounted on the forward landing gear struts, as in Model 12.

The landing gear is of the Vee type, with a rubber-sprung, divided axle. Duralumin tube struts, joined by means of sheet steel gussets, carry the spacer bar.

The Gourdou-Lesseurre Pursuit Plane

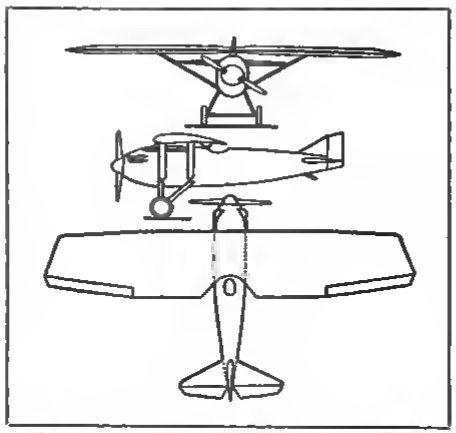
The new Gourdou-Lesseurre pursuit plane, type 13, with 380 hp. Jupiter engine, which was specially produced for the French fighting plane "presentation," derives from the Type CT racer which this firm built for the 1923 Beaumont Cup race.

Both ships are among the fastest the French aircraft industry has turned out during the past two years. The Beaumont Cup racer, piloted by Warrant Officer Devillers of the French army air service, made a speed of 223 mi./hr. over a 50 km. course, while its landing speed is said to be only 44 mi./hr., and its ceiling 29,700 ft. While official performance figures have not been made public, it is claimed by the French technical press that the maximum speed near the ground of the 13 pursuit ship is approximately 185 mi./hr. and that a landing speed and a ceiling about the same as for the racer may be expected. The racer also is fitted with a 380 hp. Jupiter engine, but its wing area is only 234 sq. ft. as against 594 sq. ft. for the 13 pursuit ship.

It is of interest to point out that there exists an intermediate type between these two ships, which is fitted with a 700 hp. Hispano-Suiza engine, has a wing area of 392 sq. ft., and weighs loaded 3320 lb. This is the ship on which the French pilot Callizo recently made a new world altitude record, reaching 39,376 ft. (12,066 m.), is one of the more recent high altitude pursuit ships now in commission with the French army air service. This ship has a speed of 161 mi./hr. at 23,000 ft. Constructionally there are only minor differences between the 13 pursuit ship and the Beaumont Cup racer. The chief of these is that the racer has an axleless, retractable landing gear while the pursuit plane has a normal Vee type landing gear with axle. The strut manner in which the legs of the racer's landing gear are encased in a streamline cowling is shown in an accompanying sketch. The details which follow equally apply to the two types.

The Gourdou-Lesseurre 13 pursuit ship is a strut-braced raised wing monoplane. The wing curve is of the Joukovski type. The framework of the wing consists of two duralumin box spars, of the type shown in one of the sketches, which are spaced 1 ft. apart, and of plywood ribs. The wing spars are arranged in the form of a V in the horizontal plan, for the leading edge is considerably swept back, though the trailing edge is straight. The wings are fabric covered. The ailerons extend almost the entire span of the wing and are remarkably narrow, their dimensions being 69 in. by 8 in. for a wing which measures 33 ft. 7 in. in span and 7 ft. 7 in. in chord. The cabane which supports the wing in the middle is composed of two vertical streamlined masts, built as box girders of duralumin.

The wings are braced to the lower fuselage longerons by two tubular duralumin struts which are cross-braced by cables and which can be adjusted for length by means of a worm



Outline drawings of the Dewoitine D1 (300 hp. Hispano) pursuit plane

gear which is incorporated in the steel sleeve fittings attached strut ends. The landing gear is of the conventional Vee type, with a continuous steel tube axle and rubber sprung wheels.

The fuselage consists of duralumin tubing with steel sleeve fittings. The main structure is of square cross section, but to this there is fixed a false structure which gives the fuselage a streamline shape of oval cross section. The motor is mounted on a hinged steel plate, supported by steel and duralumin tubes, which can be swung open by removing a few bolts, thus facilitating inspection. Although the Jupiter engine is an air-cooled type, the cylinders are entirely inclosed in a well streamlined cowling in which a number of louvres are provided for cooling purposes. The gasoline tank is mounted behind the engine, and though it cannot be dropped in flight, as is the case with several other of the new French pursuit planes, it can be quickly emptied by the pilot in case of emergency. A small gravity tank and an oil tank combined with an oil radiator are mounted in the central portion of the wing.

The tail surfaces have duralumin frames and are fabric covered.

The pilot is seated well aft of the wing, and as this is raised about 12 in. over the fuselage and has furthermore a portion cut out at the trailing edge, his vision is exceptionally good. The armament consists of four machine guns, which may all be synchronized to shoot through the propeller. An alternate arrangement provides for the mounting of two of these guns on the wing.

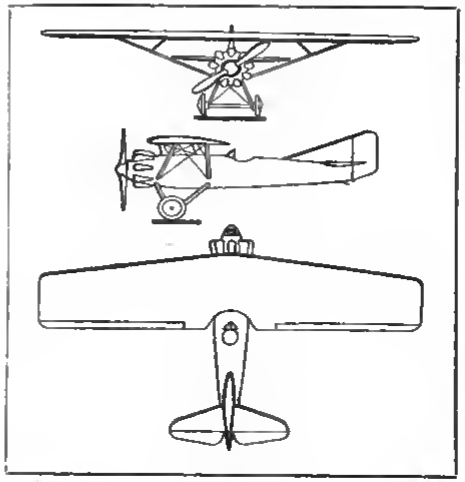
SPECIFICATIONS OF THE GOURDOU LESSEURRE PURSUIT PLANES

Engine	380 hp. Hispano	380 hp. Jupiter
Span	47 ft. 3 in.	33 ft. 8 in.
Length overall	31 ft. 3 in.	23 ft. 3 in.
Wing area	594 sq. ft.	392 sq. ft.
Weight empty		1760 lb.
Weight loaded	3320 lb.	2858 lb.
Speed at ground		135 mi./hr. (est.)
Speed at ceiling	161 mi./hr.*	

*At 23,000 ft.

Conclusions

The above described airplanes will give the reader a fair idea of the present trends in French pursuit ship design, the more as as in many cases the latest products have been followed back to the types from which they originated.



Outline drawings of the Gourdou-Lesseurre (380 hp. Jupiter) pursuit plane

Such conclusions as may be drawn at the present moment, when official performance figures are as a rule not available with regard to the pursuit ships of the 1923 program, must necessarily be incomplete. Nevertheless, one cannot help but noticing a number of outstanding constructional features, such as the well nigh general use of duralumin in the construction, and of fabric for the covering of wings and fuselages, the great narrowness of the ailerons used, the remarkable predominance of strut-braced, raised-wing monoplanes, and the simplification of metal construction by a preference for tubing instead of structural duralumin members.

Another point which merits attention is the comprehensive protection afforded the pilot on all these ships. The use of fire proof, and often armored, gasoline tanks, with provision for either releasing them bodily or emptying them instantly; the installation of an oxygen inhalator and of a heating apparatus for high altitude work; the heavy armament of four machine guns; and finally the compulsory use of a parachute—all these features indicate that the French air force is not neglecting any point which may make the pursuit pilot's work more efficient.

Amsterdam-Batavia Flight Reviewed

Before he sailed from New York for Holland recently, Anthony H. G. Fokker, aircraft manufacturer, reviewed the flight of 3,820 mi. from Amsterdam, Holland, to Batavia, made by the Dutch aviator, T. Vanderhoop in a Fokker cabin plane, type FVII.

The flight blazed the trail for a commercial airline to connect Holland with her colonies and with India, Persia and Australia. Mr. Fokker said—

"There have been many fine performances in long distance flying of late, but in each case the machines utilized have been of service type, adapted for the special purpose, and with a relatively high powered engine. In comparison, therefore, the exploit of the FVII must be regarded in a different light.

"It must be remembered that this particular plane had been employed on the regular air traffic work of the K.L.M. company's air line between Amsterdam and London during the early summer, and was only withdrawn from the line for the purpose of installing the necessary extra tanks, etc., in order to make ready for the flight.

"At the outset the flight was delayed by an unfortunate accident in Bulgaria, due to the breaking of a water-connection, the consequent forced-landing in impossible country resulting in damage to the undercarriage, etc. But the Dutchmen were not to be deterred, and as soon as the necessary repairs were finished they got under way again, and that their progress since then has been very good will be seen from the following:—

1st October	Amsterdam-Prague	526 mi.
2nd "	Prague-Belgrad	572 "
3rd "	Belgrad-Plovdiv,	276 "
3rd November	Plovdiv Constantinople,	243 "
3rd "	Constantinople-Angora,	298 "
5th "	Angora Allepo,	510 "
6th "	Allepo-Bagdad	535 "
7th "	Bagdad-Basra Muahir,	521 "
8th "	Muahir-Bandar Abbas,	432 "
9th "	Bandar Abbas-Karachi	743 "
10th "	Karachi Ambala	940 "
12th "	Ambala-Allahabad,	529 "
13th "	Allahabad Calcutta	490 "
14th "	Calcutta-Aykab,	441 "
15th "	Aykab-Rangoon	558 "
17th "	Rangoon Bangkok	481 "
18th "	Bangkok Sengora,	538 "
21st "	Sengora Medan	858 "
23rd "	Medan Muntok	824 "
24th "	Muntok-Batavia,	320 "

"Thus by making long daily flights the Dutch pilots have more than made up for the unfortunate delay at the outset.

"The Queen of Holland took the keenest interest in the flight, and in recognition of the exceptional performance, she commanded that the crew of the Fokker F VII should be decorated as follows:—

"To be Officer of the Order of Orange-Nassau, Mr. T. T. van der Hoop, to be Chevalier of the Order, with Swords, Lieut. H. Poelman, to receive the Medal of the Order, P. R. van den Broeke, (the mechanic).

"The average speed worked out at 81 mi./hr., the Rolls-Royce Eagle IX consumed 2,260 gal. of gasoline and 132 gal. of oil."

"It is an encouraging sign that the bankers and business men in Holland are behind this idea," Mr. Fokker said. "They realized that the time saved in transporting tobacco, coffee, rubber, tea and precious stones from these distant points would be of great value to them. This is not an enterprise of dreamers, but an actuality backed up by the largest Dutch interests, who are now urging the rapid development of commercial air lines radiating from Amsterdam on an even greater scale than at present."

As to whether the Amsterdam-Java air line will be a financial success, Mr. Fokker said that after three years of operating passenger and freight air routes he had decided that lines operated over long distances are the best investments, because the running costs are covered by the income.

Polish Aviation Week

Warsaw celebrated Aviation Week during the first part of October. In connection with the Week an airplane exhibit, organized by the League for Aerial Defense was held, but was rather incomplete due to lack of funds. This celebration was part of a nation-wide movement, which was heavily advertised, to arouse the Polish people to the necessity of developing both the commercial and military aviation of the country. This movement was largely pushed through private agencies, although sponsored and assisted financially to a certain extent by the Government.

America's First Aviator Senator

Gov. Hiram Bingham of Connecticut Elected to United States Senate

Governor Hiram Bingham of Connecticut has been elected to the United States Senate. Few if any newspapers mentioned his flying experience, but those who are acquainted with "Who's Who in Aeronautics" know the important part he played in our war aviation.

As soon as the United States entered the war, Col. Bingham went to Miami and learned to fly. He was 42 years old, beyond the acceptable age for war pilots, but he qualified as a military aviator and was breveted as such in May, 1917. Then they gave him a commission as Major and placed him in charge of the United States schools of military aeronautics.

Colonel Bingham ("Colonel Bingham" is a title in which he delights, having become a Lieutenant Colonel in the Air Service in October, 1917), saw to it that these aviation schools, the foundation of our almost overnight development of American fliers, did their work. He flew a great deal himself, and the officers under him never knew when he might drop down on one of the sixteen flying fields in his jurisdiction.

Col. Hiram Bingham, just elected to the U. S. Senate

Views on National Defense

Late in 1917 he was made Chief of the Personnel Division of the Air Service in Washington. This job well under way, he sought to go to France. They sent him first to Tours, and later he was for some time in command of our largest aviation instruction center in France, at Issoudun.

In "An Explorer in the Air Service," Colonel Bingham said: "Nearly all the errors, mistakes and delays to which this book refers might have been avoided had the American people insisted on having their representatives in Congress make suitable preparation for an adequate army and a well-equipped air service in the event of our being thrown into the World War."

He is now Lieutenant Governor, Governor-elect and Senator-elect—possibly a unique position—and will be sworn in as Governor and retain his place at the head of the State Government in Connecticut for a time after the Legislature meets before resigning to succeed the late Senator Brandegee in Washington.

Primarily, Hiram Bingham is a college professor. But he is much more than a college professor. He is an explorer of parts, a high authority on South and Latin America in general, whose discoveries in the lore and the dwelling places of ancient South American civilizations have brought him no little fame—and the author of a score of books. Many of these concern themselves with Dr. Bingham's work in South and Central America, but among them is "A Sheaf of Straws from Revolutionary Fields," and the latest is "An Explorer in the Air Service."

One of Mr. Bingham's books is entitled, "The Monroe Doctrine: An Obsolete Shibboleth." He has decided views on the Monroe Doctrine and our relations with our South American neighbors.

South American Exploration

Colonel Bingham comes from a family noted in the missionary field, and has himself been superintendent of a mission chapel in Honolulu, so that his passion for exploration is honestly come by. His first extensive undertaking was to follow the overland trail of Bolivar, from Caracas, Venezuela, to Bogota, Colombia, in company with Dr. Hamilton Rice, F.R.G.S., in 1906-7. He had begun teaching Latin American history at Yale and took this way of seeking original sources, being the first North American to traverse Bolivar's route.

In 1908 Professor Bingham was a delegate to the first Pan American Scientific Congress at Santiago de Chile and in that same year he explored the old Spanish trade route across South America from Buenos Aires to Lima, Peru. In 1909, 1911, 1912, and 1915 he headed South American expeditions under the auspices of Yale University and the National Geographic Society.

Colonel Bingham is a Yale man through and through. He was a member of the class of '98, in which there happened to come together a number of men destined to become distinguished. Senator Wadsworth of New York is one of them.

Senator-elect Bingham comes from a Connecticut family of long standing, but was himself born in Honolulu, Sandwich Islands, on Nov. 19, 1875. The present Hiram Bingham is the third of that name in line. His father and grandfather were both Yale men, and each attained no small rate as Congregational missionaries to South Sea islands.

The present Hiram Bingham became Superintendent of the Palama Mission Chapel in Honolulu when he returned home from Yale in 1898. Later he served an apprenticeship as a chemist in a Hawaiian sugar factory. But he was soon back in this country, studying history and political science at the University of California. He got his M.A. there in 1900, and the next year Harvard gave him a similar degree, following it with a Ph.D. in 1905.

More World Records Broken Abroad

The French pilot Doret on Dec. 29 broke the world's speed record for 1,000 km. (621.38 mi.), flying the distance over a 50 km. course in 4 hr. 32 min. 32⅘ sec., at an average of 221.7 km. (137.75 mi.) an hour.

The record made by Doret breaks the one established at Dayton in 1923 by the American fliers, Lieut. Harold Harris and Ralph Lockwood, a civilian pilot, who traveled the distance in 4 hr. 52 min. 35.24 sec., averaging about 126 mi./hr.

On Dec. 24 Pilot Doret broke the world's record for a 500 km. (310.69 mi.) flight in a plane carrying a load of 250 kg. (550 lb.). He averaged 223 km./hr. (about 138⅔ mi./hr.). The former record was made by Louis Meister in the United States in June of last year.

Both these records were made at Etampes, France.

Also on Dec. 24, the Italian pilot Bottela broke the world's height record in an airplane carrying a load of 1500 kg. (3,306.90 lb.). The machine rose to an altitude of more than 5,400 m. (17,716 ft.).

R.38 Memorial Prize for 1924

The Council of the Royal Aeronautical Society of Great Britain has decided that no paper submitted in 1924 for the R.38 Memorial Prize is of sufficient merit to justify an award.

In the circumstances, the Council decided to award the prize for 1924 to Messrs. C. P. Burgess, J. C. Hunsaker, and S. Truscott, for their paper on "The Strength of Rigid Airships," which was submitted in 1923, and received special mention in that year.

Modern Planes vs. War Surplus Equipment

Exhaustion of War Supplies Necessitates a New Outlook on Commercial Aviation

By EARL D. OSBORN

The commercial flier of today faces a most critical situation. It is the period of transition from the use of war surplus material to the purchase of new planes of a more modern and efficient character. The change is going on so gradually that many pilots do not realize this situation which will soon come to a head. Within a period of from three to five years at the longest it is believed that the whole stock of cheap war surplus material will be exhausted and the commercial flier who does not realize this and does not now lay plans to meet the new conditions will gradually be forced out of business.

The initial cost of war surplus material is very cheap, but its maintenance and operating cost is high. Also, the training machines on which commercial aviation in this country is founded are unreliable, have little reserve power and are easily stalled or put into a spin. In such a machine the average man prefers to do his flying near an airdrome. As the result of these things the civilian flier in this country has turned his machine to the uses for which it was most suited and in which there was the most money—stunt flying and carrying sight seeing passengers for short flights at high rates. His thoughts and efforts are still turned in this direction.

DeHavilland DH50 commercial plane (240 hp. Siddeley Puma), having its compass adjusted on a turntable. General Brancker, Controller of British Civil Aviation, recently made an inspection flight from England to India on a ship of this type.

Conditions are Changing

Conditions, however, are changing. Stunt flying is no longer a star attraction, in fact there is in many quarters a growing feeling against it. The novelty of riding in an airplane and the day when the passenger was a hero among his friends for months to come has passed. The day when the gypsy flier could drop into a town and get passengers at $15 a trip is now ancient history. The question is what will replace this business?

The only possible answer is a careful study of the possibilities of new equipment. What will it do and what will it cost?

Due to the ruinous competition of war surplus equipment, none of the large manufacturing plants in the aircraft industry has been able to produce and successfully market a commercial plane embodying modern ideas in airplane design—that is, one getting the utmost performance out of its wing area and horsepower. Several smaller firms have recently put out some very remarkable planes for commercial use, but their resources have not so far enabled them to do the thing in a big way. However, the time now seems ripe for the effort.

Europe, with its numerous communities spaced at short distances from one another and its highly developed transportation systems—at any rate in Western and Central Europe—does not offer a field for development along the lines which are peculiar to American aviation as so far developed. In Europe the air lines that can be justified on economical grounds—the France-Morocco and the Koenigsberg-Moscow services, for instance—operate over territories where ground communications are slow and where the airplane actually is a time saver. The cross-Channel services from Paris to London, on the other hand, are too short to be more than mere political luxuries, made possible by extremely heavy government subsidies.

Interesting European Planes

None the less, Europe has developed some planes which are of much interest to the student of commercial aviation in this country. The De Havilland Co. of England, for example, has for some years past been running a taxiplane service from London to all parts of Europe. The ship developed for this purpose, the DH50 (230 hp. Siddeley Puma), carries four passengers in a closed cabin in addition to the pilot and fuel for 375 mi. at a cruising speed of 190 mi./hr. The speed range of the ship is 38-112 mi./hr., the wing loading 9 lb./sq. ft. and the power loading 17 lb./hp. The DH50 is an orthodox, externally braced tractor biplane.

Another extremely interesting type of "advanced" commercial ship is the Focke-Wulf four-seater with 75 hp. Siemens-Halske engine, which is built by the Focke-Wulf Flugzeughau of Bremen, Germany, and which has been operated last summer on the air line between Bremen and Wan-

gerooge. This well streamlined cantilever monoplane carries in addition to the pilot three passengers in a closed cabin, and has a speed range of 40-85 mi./hr and a climb of 4000 ft. in 14 min. with fuel for 330 mi. The wing loading is 7.2 lb./sq. ft., and the power loading 30 lb./hp., the latter figure being probably the highest that has yet been attained in any commercial ship.

While these two ships represent two entirely different ideas in commercial plane design—the DH50 being a high speed type requiring 60 hp. per passenger as against 25 hp. for the Focke-Wulf which is a medium speed type—they may be taken as typical examples of the general European trend toward "advanced" airplane construction. In general it may be said that the new commercial ships will consume much less gasoline for the load carried, that they will have a much greater speed range and require less maintenance time. In addition they will be more maneuverable, will climb more steeply, and yet will not have any tendency to spin and to stall. This evolution toward very high power loadings need not be viewed with alarm as long as the wing is lightly loaded, and so will perform satisfactorily on taking off and in gliding with a dead stick.

Lower Rates Must Come

Now, how is the gypsy flier of today going to adapt himself to the new equipment? The planes will cost considerably more than those he is using at present, but their maintenance and operation will cost less; therefore to come out even he must use them more intensively than he does his present equipment. To do this he should develop his sightseeing flights along different lines. In the first place his rates must become even lower than they are now. In the second place the passenger must get something more for his money. The flier must put his emphasis on something more than just the thrill of a ride in the air. The gypsy pilot must leave the cow pasture and turn his attention to the big city. A flight around the waters of New York is intensely interesting, entirely apart from the general interest of flying. The numbers of strangers visiting the city are legion, and even the New Yorker will take the ride and learn things he had never known about the big city. It is a question of giving good service at the proper price and of selling the idea. Aerial sightseeing is not dead, but it will have to be developed along new lines made possible by modern equipment.

Aerial acrobatics and stunt flying have a very limited field, for to be interesting it must be dangerous. However, the field of advertising by air has hardly been touched, skywriting, flying bill boards, illuminated wing panels (loud speakers suspended from planes) are fertile fields of development for the progressive exhibition flier.

Aerial photography and mapping seem to be ideally adapted to the airplane, plays a part which is secondary in comparison to the ground work of developing to scale and contour but it is a growing field of great possibilities.

Aerial Taxi Services

Long distance taxi flights either with passengers or express will increasingly be profitable to both pilot and passengers. Modern equipment will be much faster, more reliable and cheaper to operate. Also more landing fields are becoming available from year to year. The growth in this direction will be slow and probably the greatest use for the aerial taxi will be in boom districts such as the oil country where ground transportation is not well developed.

The use of flying for sport purposes will become increasingly popular. The light plane is still in a very experimental stage, but it shows possibilities of being extremely moderate in operating and maintenance costs and of having an initial cost which will be within reason. If the light planes develop as the enthusiasts predict, there will be a large field opened to the old time flier in instruction work, the supplying of parts, the repair of planes and all those things which follow in the train of any development. There will be a growing number of landing fields which will need managers whether the fields be operated by the municipalities or by a group of private citizens.

From the point of view of the businessman with capital to invest the development of a system of airlines using modern equipment is of the greatest interest, but the problems involved are as different from the lines along which commercial aviation has developed in this country that it really forms a subject in itself.

It will be seen that the development of better equipment will open up new fields for the commercial flier of today, but that the solution of the problem of making both ends meet will lie in taking advantage of the greater efficiency of the new equipment so that it may be used more intensively. To be successful the commercial flier will have to forget much that he has learned and branch out along new lines.

Development of the Aerial Ambulance

The remarkable development of aerial ambulances by the French army for peace time purposes was graphically demonstrated recently by a special mission from France at the National Headquarters of the American Red Cross Society at Washington. Officials of the Army and Navy Aviation and Medical Services attended, as well as the general public.

Dr. Joseph Uzac, Chief Surgeon of the French army, and Prof. Robert Picqué, principal physician of the French health service, demonstrated in an illustrated lecture the remarkable results obtained by this mode of safe transportation for the sick.

Dr. Uzac said that the French Government, using Breguet 14A model planes, of which twenty had been devoted to this service, had since 1922 transported over 2,500 wounded in Morocco, Syria and France.

The planes are equipped with two stretchers with electrically-heated blankets, oxygen respiration tanks, a small electric stove for heating broth, and medical accessories for an attendant. In countries where roads were few or transport slow these ambulances, with the Red Cross painted on the fuselage, had effectively transported in an hour wounded from distances varying between 60 and 150 mi. The International Red Cross at Geneva, by action to be taken at its next session, Dr. Uzac added, intended to denationalize air ambulances, in time of war.

While this action is pending with reference to the use of air ambulances in time of war, Dr. Picqué said that both he and his colleagues were interested in promoting their use in emergency peace work.

The attempt to convert service type ships into ambulances has not proved successful in this country. Several types were converted into ambulances carrying from one to two patients and a surgeon. The A2 was converted so that it could carry four litter cases or four sitting cases, and equipped with lavatory and cabinets for instruments, medicine, etc. The conversion of DeHavilands planes into ambulances did not prove altogether successful. The Engineering Division at McCook Field recently developed an aerial ambulance for two patients and a surgeon, in addition to the pilot, which seems to meet all requirements, especially as a crash rescue ship. This plane is so constructed that it is easy to load and unload patients. The surgeon sits in the center between the two patients, and by the use of levers can move the patient in the litter either backward or forward, thus enabling him to explore any portion of the patient's body, adjust bandages, administer medicine, etc., without removing him from his seat. This type of aerial ambulance is expected to be ready in a short time. It is desired to secure a larger ambulance plane which will carry from six to eight patients or more at one time. Plans for this type of plane have been drawn up, but so far none have been constructed.

Russian Air Program, 1925

The Russian air program for 1925 provides for the acquisition of 1030 planes, of which number 500 are to be built in Russian factories (chiefly by the Russian Junkers company), 330 are to be ordered from the Fokker company in Amsterdam, and 200 from several Italian firms.

During the first six months of 1924 Russia bought about 700 modern airplanes in Holland and Italy.

Canadian Government Requirements for Aircraft

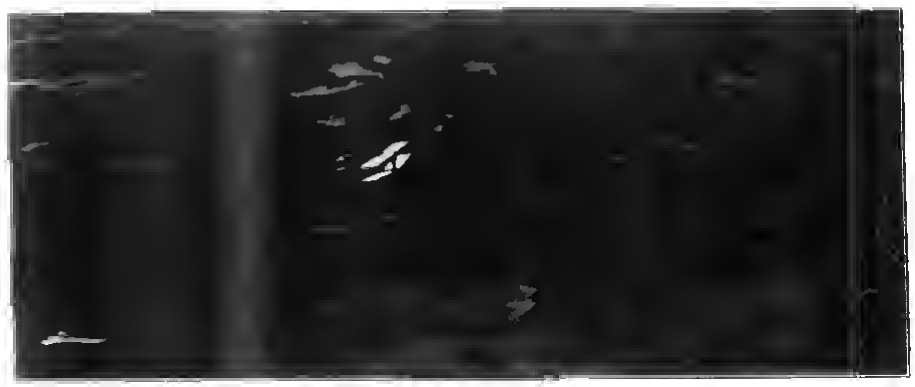
Flying Boats and Float Seaplanes Are Types Most Suitable

The vast expanse of the Dominion of Canada offers remarkable opportunities for the intensive use of civilian aircraft in a great variety of fields, such as forest fire protection, photographic map making, timber survey, mine prospecting, messenger services to outlying districts, relief work, etc. The Royal Canadian Air Force is doing a large amount of pioneering work along these lines for the civil government departments. Thus, during 1923, R.C.A.F. planes engaged in civil flying activities made 867 flights, covering 90,465 mi. in 1422 flying hours.

Several private concerns are also displaying considerable activity in civil operations. During 1923 the Laurentide Air Services, Ltd. of Three Rivers, P.Q. covered approximately 90,000 sq. mi. in forest sketching and exploration flights, detected over 400 forest fires, transported a total of 550 passengers, and gave ten pupils flying instruction. During the same year the Fairchild Aerial Surveys Co. (Canada), Ltd. of Grand' Mère, P.Q., covered a total of 510 sq. mi. by vertical photography, which necessitated 98 hr. of flying, while the Dominion Aerial Exploration Co., operating from Roberval, P.Q., explored 24,300 sq. mi. from the air and carried 15,300 lb. of freight.

Statistics for 1924 are not as yet available, but it is understood that there has been a marked increase last year in civil flying operations.

The one factor which has been chiefly responsible for retarding the development of civil aviation in Canada is the lack of machines suitable to the configuration of the country. The existence of vast forest areas makes the use of land planes impractical in most cases, but innumerable rivers, and lakes afford seaplanes frequent landing facilities, as will be seen from the accompanying illustration. Hence, seaplanes, and preferably amphibians, would solve this problem most satisfactorily. What requirements such machines should fulfill is set forth in the following memorandum which has been received from a semi-official source in Ottawa and which should prove of great interest to American aircraft manufacturers.—EDITOR.



Vickers Viking amphibian flying boat of the Canadian Royal Air Force flying over a typical landscape in Quebec Province

After careful consideration of the probable requirements of the Royal Canadian Air Force for the next few years, it has been decided to concentrate for the present on the production of three types of waterborne aircraft. It is felt that if efficient aircraft of each type, suitable for the particular requirements of the R.C.A.F., could be produced, they would meet practically all the requirements of the work for other Government Departments. These three types are described below. Information is also given as to the present progress made in their development and the action proposed during the coming winter in regard to further development.

Forest Fire Suppression Type

Flying boat, capable of carrying pilot and eight others; top speed, 90 mi./hr.; landing speed, 45 mi./hr.; initial climb, 770 ft./min.; absolute ceiling, 16,000 ft.; range, 300 mi. at 74 mi./hr.

This aircraft would be primarily intended for work in the forest areas in the northern parts of the three prairies provinces where, owing to lack of communications and absence of population for fire fighting, fire suppression work must of necessity be undertaken by air as well as fire detection. It could be used for many purposes in this area and in other parts of the country. It would be designed specially as a freight carrying aircraft and would be suitable not only for the transportation of fire suppression crews and their gear, but also of men and supplies for survey and treaty money paying parties, and the laying of refueling depots for smaller aircraft working from bases to which normal facilities are lacking. By reducing the number of passengers carried and increasing the fuel, it could be used for exploration or photographic survey operations in remote parts of the country, for which a smaller aircraft would not be suitable.

The assistance of the British Air Ministry has been asked for in the design of this aircraft and they were notified of Canada's general requirements some months ago. Stress has been laid on the importance of a fairly quick get-off and low landing speed, while the maximum speed need not be very great for this type. It is felt that if a cruising speed of around 70 mi./hr. could be depended on, nothing further would be necessary. The suggestion has been made to the Air Ministry that as an alternative to designing the aircraft as

a pusher boat with a large engine and its consequent drawbacks, it might be preferable to install twin engines of a smaller power as tractors on the wings and, possibly, of a type which would be standard with those of the following aircraft. While the disadvantages of using twin engines are recognized, it is felt that the disadvantages of using a large single engine as a pusher, more than counterbalance them and more efficient performance might be expected by fitting twin tractor engines.

Photographic Boat

Flying boat, capable of carrying pilot and two others; top speed 90 mi./hr., landing speed 45 mi./hr., initial climb, 700 ft./min., absolute ceiling, 15,000 ft., range, 6 hr. at 75 mi./hr.

The first aircraft of this type is now under test at the Canadian Vickers factory in Montreal. The preliminary tests carried out with a Rolls "Falcon" engine shows promise. Certain minor alterations are being made, and while it is laid up for these, opportunity is being taken to install a "Viper" engine of 210 hp., which the original specification called for. Trials will be continued with this engine at an early date and after acceptance, it will be shipped to Vancouver where extended trials will be made during the winter months to ascertain the real capabilities of the aircraft before ordering further of its type. In this way it is hoped that modifications will produce a really efficient flying boat suitable for use by the R C A F., as a medium sized fairly high performance aircraft for photography, forest sketching, reconnaissance, light transportation, inspection work, etc.

Fire Detection Type

Single float seaplane, capable of carrying pilot and one other, top speed 105 mi./hr., landing speed 45 mi./hr., initial climb, 1,000 ft./min.; absolute ceiling 17,000 ft.

It is proposed to place orders this winter for the construction of ten Avro single float seaplanes to be fitted with "Viper" 210 hp. engines for use in forest patrol work in Northern Manitoba and Saskatchewan. These will be reserved for fire detection work and light transportation in this area.

It is felt that while this aircraft is not perfect for this class of work, it is possibly as good as anything which can be obtained today for this purpose. It has the added advantage too, that the Avro is standard as a fire detection machine at High River, fitted with wheels and the same engine. It is also standard for training purposes at Camp Borden. Its use in Manitoba and Saskatchewan as a seaplane will enable the R C A F. to standardize aircraft and engine parts for these three classes of work, pending the development of a more suitable type.

It is probable that a smaller aircraft of a lower horsepower which would be cheaper to construct and more economical to maintain, will be developed to perform fire detection duties, and that eventually, when wireless intercommunication is perfected and efficient patrol systems are available in Canada, a single seater, light aircraft can carry out these duties at very greatly reduced costs. This stage in the development of forest protection work has not yet been reached, however, and pending further progress, it has been decided to standardize on the Avro seaplane with "Viper" engine.

Aircraft Engines

It will be noted that it is proposed, if possible, to make use of the Viper or Hispano 210 hp. engines in all three types of aircraft, as it is felt that the standardization of a suitable engine will result in considerable economies and make for more efficient working. This engine has been chosen as it can be obtained at a very moderate cost, is reliable, and easy to maintain. There are also other engines of very similar design and equally suited for use with such aircraft. The problem of adopting the radial engines in Canada is being closely watched, and several engines of this type have been obtained and are now in use at Camp Borden, fitted in Avros. If they are found satisfactory, they will be introduced into field operations, first of all at High River, in land patrol aircraft. Exhaustive trials are also proposed with the radial Siddsley Lynx 180 hp. fitted in an Avro seaplane. This type possesses many advantages over the water-cooled engine and it is probably capable of further development and improvement in detail. In a few years this or another engine of the same type can then be adopted with advantage in Canada. It would be equally suitable with the Viper, Wright E 4 or Hispano for any of the types of aircraft outlined above.

The Investigation of the Lampert Committee

Witnesses are Asked Thirty-Seven Specific Questions

Not often has a Congressional Committee charted out for itself a more thoroughgoing investigation than that which is now under way by the select House Committee on the Air Service, headed by Representative Lampert of Wisconsin. So comprehensive is it in scope and so ambitious is its program that there is every prospect that the committee will meet nearly every day until well toward the end of the present short session. The inquiry may have one of three results.

First, it may result in definite recommendations by the committee, perhaps in the form of actual legislation, having for their object the strengthening of the air service and the building up of a commercial aircraft industry in the United States. Second, the result may be a request by the committee for authorization to prosecute its inquiry after March 4. Or, third, Representative Lampert and his associates may decide to recommend a further inquiry to be held by a joint committee of both houses.

The Thirty-Seven Questions

The investigation had its inception in a resolution offered last spring by Representative Nelson. The committee made some preliminary investigations this summer, but the main inquiry only got under way three weeks ago, Representative Perkins was appointed examiner-in-chief and the committee has employed Frederick Richardson as chief consulting investigator. The committee has departed from the practice of congressional investigating committees by defining in advance within exact limits the scope of the pending inquiry.

Thirty-seven general questions will be asked with a various number of sub-questions, as follows:

I.—Is war in the future a possibility?

A.—Is the United States in a position where we need any further protection against or preparation for war?

When Will War Come?

B.—Within what period is it probable, so far as a forecast may be hazarded, war will come?

C.—What nation or nations would be our probable enemies in event of such a war?

2.—Where will the next war be fought?

A.—On the land?

B.—On the sea?

C.—In the air?

D.—Under the water?

E.—By heavier-than-air craft?

F.—By lighter-than-air craft?

G.—With bombs and chemicals?

H.—On our shores, on foreign shores, or between the two?

J.—In the Pacific, the Gulf or the Atlantic?

3.—To what extent will aircraft enter into the next war?

A.—As an arm of defense?

B.—As an arm of offense?

C.—In distributing chemicals?

D.—In distributing bombs?

E.—In carrying on gunfire against the enemy?

F.—As scouts for land and sea forces?

G.—As spotters for gunfire?

H.—As aerial photographers and map plotters?

4.—Has the United States as good or better air service than its potential enemies?

A.—In organization of its flying forces?

B.—In organization of its reserve flying forces?

C.—In organization of its manufacturing forces?

D.—In organization of its reserve manufacturing forces?

E.—In coordination of its active and reserve men and manufacturing forces, ground and air?

F.—In the number of aircraft it could immediately put into the air in a war emergency?

G.—In the rapidity with which it could get on a quantity production basis with a superior type of aircraft?

H.—In its selection of types to be kept on hand?

J.—In its program for future construction?

Expenditures on Aircraft

5.—If the United States has not as good or better air service than its potential enemies, is it because our potential enemies have spent, are spending, or will spend, more money than we?

A.—In experimentation?

B.—In training of regular fliers?

C.—In organization of reserve forces?

D.—In flying equipment?

E.—In flying fields and plants?

6.—Is it because they have better inventive genius than we have?

7.—Is it because they have better systems and organizations for combining money and brains than we have?

8.—Is it a combination of the three?

9.—What is necessary to give the United States an adequate air service from the following standpoints?

10. How long would it take us in an emergency of war to be on a satisfactory quantity production basis?

11.—Could we be on a satisfactory quantity production basis of the elements embraced in question No. 10 as quickly as our potential enemies?

What Needs to Be Done

12.—What will be necessary to place us in a position of being able to get on a satisfactory quantity production basis with the most modern types of war aircraft within the same time or in less time than our potential enemies, how much money will it cost; how long will it take?

13.—What are the commercial possibilities of the future for airplanes?

14.—What has been the standard of accomplishment by the military service as compared with the civil services; that is, the postal air mail service?

15.—What plans now exist for the mobilization of our man and manufacturing power in event of a war emergency?

16.—What plan now exists for training a reserve personnel of fliers and ground men?

17.—Can aircraft manufacturers who would be the nucleus for a war emergency expansion exist on work provided from sources other than governmental?

18.—Which is the better method for the Government to acquire aircraft, through open bidding or special patronage by the Government of a restricted group of manufacturers who can thereby be kept in business by governmental work?

19.—What method or system now exists for compensating inventors and designers who bring their ideas to the Government?

20.—What is the practice of foreign governments in this respect?

21.—What improvement can be made in the present method of compensating inventors for the use of their inventions or designs on governmental planes?

22.—What if any added stimulus should be given invention and designing and independent construction of aircraft by a system of cash prizes for accomplishments measuring up to a certain standard?

23.—Is a Government subsidy necessary to be sure of production of reserve aircraft?

24.—What scope and usefulness do lighter-than-air craft possess for war?

25.—Is the "mother ship" dirigible to carry and release airplanes a practical war possibility?

Commercial Possibilities of Airships

26.—What are the commercial possibilities of lighter-than-air craft?

A.—As mail carriers?

B.—As passenger carriers?

C.—As express and freight carriers?

27.—What constructive purpose or purposes did the "Round-the-world flight" of airplanes accomplish?

28.—What constructive purpose or purposes did the continental flight of the Shenandoah accomplish?

29.—What country possesses the world's supply of helium?

30.—Where in the United States is helium found?

31.—What efforts have been made by the Government to acquire possession of helium-bearing gas deposits?

32.—Are these helium supply bases now under the control of private capital or of the Government?

33.—What are the relative lifting capacities—or buoyancies—of helium and hydrogen?

34.—What percentage of useful load-carrying capacity is lost by this difference to buoyancy of helium and hydrogen?

35.—Should the lighter-than-air craft be under the same control as the heavier-than-air craft, or should it be under a separate control and be developed independently of the heavier-than-air craft services?

36.—Should experimentation, expenditure of Government funds, production of aircraft and determination of policies relating thereto be under the Army, the Navy, both of these or under a separate unit of the Government?

37.—What are the present possibilities for the sale of American-made airplanes in foreign countries?

New DeHavilland Air Liner

A new type of air liner is under construction for the British Air Ministry in the factory of the DeHavilland Aircraft Co. at Edgware, England. This ship, which is known as the DH54, is a normal tractor biplane, fitted with a 650 hp. Rolls-Royce Condor engine.

Accommodation is provided for fourteen passengers in a large and airy cabin. The height of the cabin is ample for even the tallest man to stand upright, and the gangway is of sufficient width to allow free movement for the whole length of the cabin. Separate armchairs for passengers are arranged three abreast all facing forward, and each passenger has a wide field of view through safety glass windows. Special attention has been paid to the provision of adequate ventilation and heating arrangements.

The pilot and navigator are located forward of the main planes, and both have an excellent and uninterrupted view. Baggage is carried in a large hold located under the pilot's and navigator's cockpit, which is entirely separate from the cabin.

The DH54 will be fitted with the DeHavilland automatic variable wing camber device, which enables aircraft to take off after a shorter run, and reduces the length of run on landing by reason of the low flying speed when throttled down which it imparts to the machine to which it is fitted.

The fuselage is built on the usual DeHavilland rigid system of construction, eliminating all bracing wires and insuring long life and accuracy. To facilitate storage of packing, it is built in two halves which are secured together by bolts. A novel feature is the oleo-rubber in compression landing gear, which—in the case of an unavoidable forced descent in water—can be jettisoned. Dropping the landing gear, in this emergency reduces to a minimum the risk of overturning on alighting, while the machine is so constructed that it will float for several hours without submerging.

The main specifications are as follows: Span, 68 ft.; length, 51 ft., height, 16 ft.; weight fully loaded, 11,000 lb.; top speed, 110 mi./hr.; cruising speed, 100 mi./hr.; landing speed, 52 mi./hr.; range, 4½ hr.

AIRPORTS AND AIRWAYS

Long Beach (Calif.) Air Meet

A very successful "aerial rodeo" was staged Dec. 20 and 21 at Long Beach, Calif in connection with the official opening of the municipal airport The meet was held under the auspices of the Aero Club of Long Beach, of which J G. Montijo is commodore, Earl S Daugherty vice commodore, A R. Ebrite rear commodore, J O. York secretary-treasurer, Watson Kurl assistant treasurer and E N. Ebrite field marshal

Eight cups were given as first prizes and many articles of value were given as second prizes for the different events.

Some of the many types of planes flown at the meet were as follows: Montijo, Kinner and Standard cabin planes, Mantee parasol monoplane, Fokker DVII, Spad VII, Nieuport 28, Polson Special, Kinner, Oranco 5-seater, Catron-Fask, DeHavilland and many JN4D's.

With 50 airplanes participating in the events, and with an immense crowd on the municipal aviation field watching the performances, the two-day aerial rodeo was pronounced by critics to be one of the most successful spectacles of the kind ever held in the west.

Aviators entered the rodeo from San Diego, Glendale, Santa Barbara, Long Beach and other cities, indicating that the flying tournament attracted considerable interest

There were wing-walking contests, relay races, upside-down flying, dead stick landings, cabin plane flights, races for commercial ships, landings from great heights, parachute drops and other thrilling features that kept the big audience in a state of excitement and at the peak of interest.

Earl Daugherty performed the most daring and expert bit of flying of the meet when he climbed to a height of 5000 ft and then raced with three other contestants for the honor of landing first.

He made the trip from the sky to the municipal flying field in 53 sec. "Bill" Monday was second and Ray Crawford finished third

The Pedlar-West special stunt given earlier in the afternoon almost took the breath away of the on-lookers A wire was stretched horizontally 30 ft. from the ground With West on the top of the plane, and Prdlar hanging by his knees from the landing gear, Earl Daugherty drove his ship underneath the hazard

As it passed under, West plucked a flag off the wire, and Auggy Pedlar deprived a spectator of his hat

The stunting contest was won by Ray Freeman and second place was captured by Montijo. Daugherty took off with the other two flyers in his French Nieuport and ran the gamut of the thrilling stunts, when suddenly something went wrong with the motor of his ship. He descended immediately and by careful maneuvering brought his plane to the ground just as the engine stopped

A summary of the events follows: The wing-walking contest was won by Ernest Davis, with Watson Keerl as pilot, Martin Jensen won the relay race, with Leo Nanus second and Keerl third; Ray Crawford captured one upside-down flying event, while Auggy Pedlar won the other; in the free-for-all event, Al Ebrite was first, Martin Jensen second and "Ace" Bragunier third, the dead-stick landing was won by Arthur Ramlin, with Crawford second and Bragunier third, Art Goebel won the Jenny scramble, with Kenneth Monte second and Jensen third.

Members of the marine corps of San Diego carried off the honors in the air service special First was won by the pilot of the mahogany ship, No 7 taking second and No 15 third. The cabin plane race was won by J. G. Montijo, L. Ryan of San Diego was second and Dr H H. Young of Glendale third. Al Ebrite won the fire slide He also won the race for commercial ships, with Earl Daugherty second and L. Ryan third.

Auggy Pedlar provided one of the thrills of the day when he jumped with a parachute from a plane driven by Watson Keerl, and made a safe landing on the municipal field. The final event, a stunting contest, was won by Ray Freeman, with Montijo second and Daugherty third.

Although many difficult feats of flying were demonstrated, not a single accident occurred in the big rodeo.

Loening Air Yacht Makes Long Flight

Those who have traveled from New York to Palm Beach by train will certainly appreciate Clifford Webster's fine flight from New York to the Mecca of winter vacationists. The trip by train requires a day and two nights and the trains are invariably late, hot and dusty. By plane the trip takes about twelve hours and almost two thirds of the run is over sheltered inland waters. Some day there will be a regularly organized night service so that one may go to sleep in the penetrating cold of New York and wake up in the permeating warmth of Florida.

The plane used by Webster is the latest type of Loening Air Yacht and was recently purchased by the Curtiss Metropolitan Airplane Co This company has several Seagulls at Palm Beach, but Fred Golder, the manager of the company, says that when the winter inhabitants of Palm Beach want to move they want to move fast, hence the purchase of the Loening

The first day Webster took the plane from New York to Manteo, N C in 4 hr 6 min. and then on to Beaufort, N C in 1 hr 20 min The next day was foggy and there being an hurry, the plane only made Southport, which took 1 hr 30 min The third day the air yacht reached Charleston, S C in 1 hr 26 min, Titusville, Fla in 3 hr 3 min, and Palm Beach in 1 hr 20 min. The total flying time for the trip was 12 hr 45 min., the distance being about 1200 mi.

The Curtiss Metropolitan Co has sold five new Seagulls during the past summer As far as is known, the stock of new Seagulls is getting pretty low and when it is gone there will be nothing to replace it as no new boats of this type are being built

Bellanca Company Moves

The Columbia Aircraft Corp, of which J. G Bellanca is the chief engineer, has moved from the former Lawrance Sperry plant at Farmingdale, L I, to Hasbrouck Heights, N J, six miles from New York. Communications to the company should be addressed to Box 17, Hasbrouck Heights, N J For the present Mr Bellanca will carry on his work in the building occupied by the Chamberlin Aircraft Corp, of which C D Chamberlin is the head and also an associate of Mr Bellanca in the Columbia Corp

The new location adjoins the Teterboro Airport at Hasbrouck Heights and is but a few miles from the new Air Mail terminus at Hadley Field, N J.

The Columbia Aircraft Corp has completed the contract for the new Bellanca high lift wings for Air Mail planes These have been successfully tested in service.

Dallas (Tex.) News

At the annual fall meeting of the Texas section of the American Society of Civil Engineers a paper on "The Use of the Airplane in Right-of Way Surveys" was read by J. B Thomas, chief engineer, Texas Power & Light Co.

Mr Thomas described methods that have been employed by his company in locating rights of way for new power lines through the use of commercial air photography Mr Thomas said that use of the aerial photos which were taken at overlapping intervals over the route to be followed and then matched together was as cheap as the older method of surveys, was quicker and had the added advantage of enabling all concerned—the operating department of the company as well as the construction men—to visualize the proposed line.

He said that an adaptation of such methods could undoubtedly be found of value in selecting routes for pipe lines and other work as well as electrical transmission lines.

Mr Thomas is flown on his observation trips by the Love Field Station of the Curtiss Aeroplane & Motor Co

For both observation work with the engineers and photographic mapping, a regular Curtiss C6 Standard, with the usual 32 gal gas tank replaced by a 60 gal tank, is used. This ship can be operated up to 12,600 ft. altitude with full load with no other alterations except streamlining all wires, using a propeller slightly smaller than the usual one the usual shutters on the radiator to maintain proper motor temperature.

The photographic mapping is done by Fairchild Aerial Camera Corp from their Dallas office.

Ft. Worth News

By Geo. F Buchof

A great deal of interest and enthusiasm in flying is shown by the population of Ft Worth, Tex Judging from various indications, there will be several privately owned planes in the air here next spring

Every Sunday there is a flying show at Jubilee Field, which is situated just at the western edge of the city, about 4 mi. from the business district and on the edge of the residential section. Recently the Aviation Gardens put on a flying show for the community chest fund Lookwood, who claims to be the first to change planes in the air, was the star performer and the crowds choked all the roads leading to the flying field. That some people seem to take pleasure in wing walking is shown by Joe Spark, a young fellow from hereabouts, who says he does it for the fun of it when he cannot get paid for the stunt. J. B. Cole, a former pilot of the Royal Flying Corps, with your correspondent as passenger, did daring this meet one of the prettiest whipstalls ever seen, after which he spun down from a height of 2000 ft, giving the crowds great thrills.

Air Freight Encouraged in Europe

The transportation of freight by air is being encouraged in every way possible by British and German air services. In London the Imperial Airways is opening twenty-five new depots for merchandise for delivery to various parts of Europe, and similar arrangements are being made in continental cities for air freight service by British planes. A number of specially equipped cargo planes are already in operation, and work is being done on a system of packing air freight in standardized metal containers. Trials of synthetic gasoline and of automatic fire extinguishers for airplanes have been carried on in France for some time.

The German and Baltic air services have developed a considerable volume of air freight, having carried 14,095 kg during May, June, and July, 1924, compared with 7,511 kg during the summer of 1922. This latter, the 1924 figure, represents only 64 per cent of the carrying capacity of the planes The principal commodities transported by air are drugs, pharmaceutical products, moving-picture films, perishable foods, spare parts and accessories, fancy goods, models, samples, fresh flowers, and banking documents The rates vary with distance, from 1 gold mark per kilogram for the Koenigsberg-Danzig flight to 10 marks from Koenigsberg to Moscow

Warning to Aviators

The following notice has been received from a Los Angeles correspondent and is reprinted for the benefit of those concerned:

"The attention of pilots is directed to the dangers of flying close to tanks and reservoirs containing crude oil, gasoline, etc, of which there are many in this vicinity

"On hot days without wind an inflammable column of vapor may rise to a considerable height above such tanks. The ignition of this vapor by exhaust flames would certainly wreck the plane, and might cause a flash-back to the reservoir

"A forced landing on the roof of one of these reservoirs, some of which are many acres in extent, would be disastrous. The roofs are of very light construction, and the plane would probably go through and ignite the oil"

Photo Kadel & Herbert

Designer, constructor and pilot of his own ship—Captain Udet, German wartime ace, in front of the Udet "Kolibri" (20 hp Douglas engine) which is one of Germany's foremost light planes

Kansas Flying News

Roach and Yeoman, commercial fliers of Haviland, Kan, report that they are operating a Curtiss Standard from a pasture which is located half a mile north and a little west of this town They have no hangar facilities at present but hope to have them in the near future Visiting ships are welcome

Willie Toadvine of Haviland is now in Wichita, waiting for the weather to clear up before flying his New Swallow home

Winter Air Traffic in Central Europe

This winter for the first time a number of air lines will continue to operate in Central and Northern Europe despite the unfavorable weather conditions. Among the services involved in this new policy are the following: Hamburg-Malmoe-Copenhagen, Stockholm-Abo, Helsingfors-Reval, Danzig-Warsaw-Lemberg, Warsaw-Ceacow, Berlin-Dresden, Frankfurt-Munich-Vienna Budapest

All these services use Junkers cabin monoplanes.

Brazilian Air Activities

The Aero Club Brazileiro recently appointed a commission to study the question of aerial navigation in Brazil and to present a draft of regulations

A French aviator representing the Latecoere Air Lines is in Brazil in connection with a proposed air mail service between France and the eastern coast of South America

New Commercial Planes Building

The Decatur Aircraft Co of Decatur, Ill., reports that it has under construction in its shops the following ships One three-place plane with rotary engine, one Hispano-engined five-place passenger plane of original design, one three-place plane built on Cannck lines, and a five-place flying boat for passenger carrying work on a lake

Notice to Aviators

Notice to Aviators No 1 (1925), issued by the Hydrographic Office, U S. Navy Department, contains information on landing facilities for seaplanes in the Gulf of Darien, Republic of Colombia.

UNITED STATES AIR FORCES

U. S ARMY AIR SERVICE

To Photograph Sun Eclipse

On the occasion of the eclipse of the sun, which takes place on Jan. 24, 1925, the Chief of Air Service has instructed the Commanding Officer of McCook Field, Dayton, Ohio, to cooperate in every possible way with Dr David Todd, Professor Emeritus of Astronomy and Navigation of Amherst College, in attempting to secure by means of photography from an airplane at high altitude, photographs of this eclipse The details of this photographic flight are to be arranged between Dr Todd and the Commanding Officer of McCook Field

The flight to be made by the Air Service to photograph the eclipse of the sun is only one of a series of flights made for the purpose of recording the sun's corona It was the idea of Dr David Todd that it is possible to photograph the corona of the sun at any time by going high enough Formerly it has been possible to photograph this corona only during a total eclipse From 1833 to 1922 all photographs of the sun's corona were made during total eclipses This was due to the fact that in full sunlight the corona is projected upon a sky background of atmospheric particles strongly illuminated by direct solar rays The contrast between the corona and its background is so slight that photographs will not show the corona. Atmospheric dust also hampers photographing the corona from the ground At 13,000 ft, we are above one-third of the entire atmospheric mass and above practically all of the atmospheric dust The higher the ceiling, the better picture will be made but 15,000 to 18,000 ft has been found to be satisfactory This experiment was first made at Miami, Fla, in March, 1922, and good pictures were secured.

To neutralize the jar and vibration of the camera, no wood or metal contact is permitted between the camera and the airplane The camera is secured in the cockpit by heavy rubber covered rubber ropes. The pilot goes to his maximum ceiling then cuts off his engine and glides as slowly as possible in a straight line away from the sun The observer adjusts the finder on the camera so that the sun's image will be in the center of the picture desired, and exposes several negatives. With the usual movie camera, the solar image will be about one twelfth of an inch in diameter If carefully secured and focused, the solar image on the film should appear in a succession of small black and practically circular disks. The film is developed with weak solution and very slowly When the thin streamers or brushes of light make their appearance around the edge of the black solar disk, the developing is stopped as this is a phenomenon which it is desired to show.

The best films for this work are those double covered with emulsion and Dr Todd plans to experiment with films packed with a mixture which is readily soluble in the developer In the experiments above Miami, such intense cold was found at the high altitudes that the oil which lubricated the camera froze and caused the camera to stick and jam It was found necessary before going up to wash off all of the oil with gasoline and then oil the bearings with alcohol At 15,000 ft. the sun's rays are from three to five times more powerful than they are on the ground and color screens are necessary to dampen the full sunlight. Such screens are used as will permit only bluish and violet rays to act upon the film During the period of the total eclipse, the corona of the sun will be much more easy to photograph, but the method suggested by Dr Todd should permit the corona to be photographed at any time

Air Service Its Own Transportation Agency

The Army Air Service is one branch of our military establishment which does not have to rely solely on the railroads for transporting its personnel There is no better illustration of aerial passenger traffic in heavier-than-air craft as a means of rapid, safe and, all aspects considered, economical travel between different points in this country than the conveyance of students to and from Chanute Field, Rantoul Ill, the home of the Air Service Technical School, by and large the only school of its kind in the world.

The inception of this mode of transferring personnel, during the latter part of 1923, was caused primarily by a dearth of government funds set aside for their transportation by rail During that portion of the year aforesaid approximately thirty-six Air Service men availed themselves of this means of travel to attend the school Travel by air is voluntary on the part of the student. To date, in the present year, 165 passengers have been brought via airplane to the school or returned as graduates to their organizations, and it is estimated that this number will run well over the two hundred mark by Dec 31 No fatal or serious injuries were incurred by these passengers to the present time despite the fact that many men have come over itineraries of such varied conditions as are involved in flying from Brooks to Kelly Field, San Antonio, Tex, Mitchel Field, L. I, N Y, Crissy Field, Calif, Selfridge Field, Mich, Maxwell Field, Montgomery, Ala., or Bolling Field, Washington, D C

Langley Field News

During the week of Nov 9 to 15, the following missions were participated in by the 50th Squadron One tactical maneuver with Fort Eustis cooperating with Coast Artillery Units there, two formation flights, five cross-country flights, five cross-country flights to Bolling Field and return, three Aerial Gunnery flights and fifteen flights for the training of Aircraft Crews. Lieut. John F Whiteley with Sergt. J C Miller as passenger, flew to Mitchel Field, L. I, N Y, on Nov 15, and returned on Nov 18 Total flying time for this Squadron for this week was 35 hr 40 min, with a total of forty flights

Lieut William J McKiernan returned from flying the Model Airways on Nov 11, touching at the following stations: Bolling Field, Langin Field, Wilbur Wright Field, McCook Field, Selfridge Field, Kokomo, Ind, Chanute Field, Scott Field, Vincennes, Ind, Bowman Field, and returned to his home station The total flying time for this mission was 25 hr 10 min Lieutenant McKiernan was delayed en route by fog, snow and rain

Orders were received on Nov 12, transferring Capt. Arthur E Easterbrook, A.S, to duty with the Organized Reserves at Spokane, Wash Captain Easterbrook has been commanding the 50th Squadron for the past three years.

Rating of Primary and Advanced Training Schools

The Secretary of War has directed that the successful completion of the course at the Air Service Primary and Advance Schools at Brooks and Kelly Fields, Texas, be considered as equivalent, in taking examinations for commissions in the Regular Army, to membership of the senior class due to graduate within six months from recognized colleges and universities or to graduation therefrom, and to membership in the Senior Reserve Officers' Training Corps Unit.

In practice this means that such graduates of the Air Service Schools named who desire to take the examination for second lieutenant in the Air Service must only qualify in one general subject and in one technical subject.

Fox Field, Camp Custer, Mich.

Announcement has been made by the War Department that the flying field at Camp Custer, Mich., is designated as Fox Field in honor of 1st Lt Russell R Fox, A.S, who was killed in an airplane accident, Jan 17, 1923, at Fort Sheridan, Ill

Army Air Orders

Spec Orders 274, assigning First Lieut. Charles P Prime, A S, to Marshall Field, amended to assign Lieutenant Prime to Mitchel Field

Spec. Orders 257, assigning First Lieut. Harold A Moore, A S., to Selfridge Field, revoked

Capt. Ralph P Cousins, A S., Chanute Field, to office Chief A S, Washington

First Lieut. John Macklem Perkins, A S Off. Res. Corps, Towanda, Pa., to active duty Langley Field, reverting to inactive status Jan. 18.

Sec. Lieut. George Jefferson Neighbors, A. S Off. Res Corps, Brooks Field, to his home, reverting upon arrival thereat to inactive status.

First Lieut. Clyde A. Kuntz, A S., Akron, to Scott Field

Capt. Carl W. Coonell, A S, Boeing Air Corp, Seattle, to San Francisco, sailing for the Canal Zone on transport April 14.

First Lieut. William C. Farnum, A.S., Kelly Field, to New York City, sailing on transport for Canal Zone April 9

First Lieut. Frederick W Evans, A S, Kelly Field, to New York City, sailing on transport for Canal Zone April 9

First Lieut Michael E. McHugo, A S, Brooks Field, to Kelly Field

Spec. Orders 148, assigning First Lieut. Clifford C Nutt, A S, to Kelly Field, amended to assign Lieutenant Nutt to Fairfield Air Ist. Dep, Fairfield

Sec Lieut Clyde K. Rich, A S, Brooks Field, to Selfridge Field

First Lieut. Richard T Bennison, A S, A. S, Adv Fly School, to Commanding Officer, Kelly Field.

Staff Sergt Frank L. Arbuckle, A S, retired.

Sec. Lieut. Donald F Stace, A S, Selfridge Field, to New York City, sailing Jan 28, via Government transportation, to Hawaiian Islands

Transfer of Capt Willis Henry Hale, Inf., to Air Ser, announced.

First Lieut. Carlton F Bond, A.S., Aberdeen, to New York City, sailing, via Government transportation, March 4, to the Philippine Islands.

Capt Cornelius Dennis McLaughlin, A S. Off Res. Corps, McCook Field, to active duty Fairfield A. Int. Dept., for training, reverting to inactive status Dec 23

World Fliers' Rewards

Secretary Weeks approved a plan for reward of the Army world fliers which would advance Capt. Lowell H. Smith 1,000 files on the promotion list and Lieutenants Wade, Nelson and Arnold 500 files each.

Sergts. Henry H Ogden and John Harding, who hold reserve corps commissions as Second Lieuteoants, would be appointed officers in the regular army in their reserve corps grades

All members of the flight squadron would receive distinguished service medals and would be permitted to accept the decorations offered by foreign Governments.

The plan was drawn up at the War Department at the request of President Coolidge, to whom it has been submitted by the War Secretary If it receives the President's approval it will be transmitted to Congress, which alone has authority to confer the privileges recommended

The advancement proposed for Captain Smith would equal approximately thirteen years of service in the line of Captains and would place him among officers of that grade whose names appear on the promotion list for majorities. The advancement in files given the three Lieutenants approximates four years' service and places their names high on the list of First Lieutenants.

Secretary Weeks explained that the advancements proposed for the officers and for Ogden and Harding would be the greatest ever given in peace time, and would be comparable to the promotion given General Pershing in time of war

In addition the regular retirement provisions of the Army would be set aside in the case of the six men, and they could be retired on their own request at any time with the rank and pay allowances of the next higher grade than that held at the time.

Kelly Field News

Capt Lloyd. L. Harvey, A S, pilot, accompanied by Capt. L. P Miller, A.S, made a cross-country flight to Langley Field and return recently. The trip consumed about 40 flying hours, but was without accident or forced landing of any kind

Lt J L. Orisbaru, of Langley Field, recently made a trip here in a Martin Bomber, bringing Maj I B March, Medical Corps, Flight Surgeon at Mitchel Field, to attend the Convention of Army Surgeons. Bad flying conditions were encountered throughout the trip.

U. S NAVAL AVIATION

Admiral Moffett on Airships

Helium, produced at an initial cost of $500 per 1,000 cu. ft, can now be made at $50 and could be further reduced $5 to $10 per 1,000 ft to cost under favorable conditions, Rear Admiral W A Moffett, Chief of the Navy Bureau of Aeronautics, said in a paper prepared for delivery before the session of the American Petroleum Institute at Ft Worth, Tex on Dec 12.

Helium, he said, was instrumental in saving the Shenandoah when she broke from her mooring mast at Lakehurst about a year ago Its stem ripped off, its rudder post damaged, and otherwise badly bettered, the ship was safely brought back.

The paper outlined Admiral Moffett's vision of commercial airship transportation The following routes from New York, he said, are practicable:

To London, via Halifax or the Azores to Panama, via Porto Rico or Havana; Panama to all points on the west coast of South America, and to the east coast of South America via Porto Rico and Trinidad

"Further developments," he said, "will take airships to the broad expanse of the Pacific from California to Hawaii, to Guam, to the Philippines, to Asia and to Australia.

"And with this commercial development of ships of from five to eight and even ten million cubic feet capacity, the Navy should expend its scouting fleet of airships In times of national emergency the whole commercial organization could be concentrated on short notice, giving this country tremendous advantage. Such a condition would give maximum assurance of peace, for superior power is the greatest assurance against aggression.

"There will devolve on the oil and gas companies the absolute requirement of conservation of helium-bearing natural gas the furnishing of a steady and sufficient supply of this gas; the co-operation with the liquefaction industry in extraction of the helium, and the consumption of the natural gas after the helium has been extracted"

Ambulance Plane Founders

Three Navymen and a civilian were killed the afternoon of Dec. 23 when a naval ambulance seaplane returning from an errand of mercy down the North Carolina coast swamped as the plane was landing at the Hampton Roads Naval Air Station

The victims were E M Keyser and A S. Manwaring, chief petty officers; P. H. Gavin, a hospital apprentice and Landrow B. Williams of Buxton, N C, son of a retired naval enlisted man. Williams was suffering from pneumonia and an after-effect of influenza and accompanied by his father, was being transported to Norfolk for hospital treatment.

Young Williams was drowned, as was Keyser Manwaring and Gavin were killed when they collided with propeller blades in trying to escape from the sinking craft Williams' father, Lieutenant W B Gwin, U S N, pilot of the ambulance plane, M. M. Mendenhall, a radio operator, and William Mayo, an aviation mechanic, were rescued from the partly submerged plane by the crew of an air station motor boat that was waiting at the landing to assist in carrying passengers and crew of the seaplane None of these was injured

The ambulance plane seemed to make a perfect landing, but right afterwards she displayed signs of distress Water rushed in through the bow, filling the forward portion of the craft and she seemed in danger of sinking The pilot guided her for the shallow runway. She missed the concrete elevation

U. S. NAVAL AVIATION

(Continued)

and floundered over into the deep water alongside. All the occupants of the plane, including the sick man were forward. Manwaring and Gavin, rushing aft in an effort to escape the inrushing water, were struck by the propeller and hurled overboard.

This was the first fatal accident that has occurred in connection with the operation of an ambulance plane since the aerial hospital service for the isolated coast regions was inaugurated more than a year ago by Captain Yarnell, then commanding officer of Hampton Roads Air Station.

The mishap was attributed by Captain Cooke, Captain Yarnell's successor, to the probable existence of a hole in the bow of the plane.

PUBLISHER'S NEWS LETTER

The following blast from a contemporary under the heading "A Slam at Our Friend—The Enemy" offers a great temptation to treat some of its insinuations and statements seriously and reply in kind. But this is the season of Christmas cards and good cheer and is a time when humorous exchanges should be taken in the spirit in which they are made. So here is the delicate morsel from the self appointed "asserting voice of McCook Field" which, we am glad to see, asserts in another place that "it might be well to adopt the system of England by creating a separate Air Ministry, which takes equal rank with the Army and Navy."

* * * *

"Mr. L. D. Gardner, of 'Aviation,' hates McCook Field, Mr. Gardner hates Dayton; he hates Mr. Patterson; the National Cash Register Co., and the National Aeronautic Association of 1924. Running short of spleen last October, he imported C. G. Grey, editor of 'The Aeroplane,' from England to help him hate American aviation.

"Mr. Gardner has been harping about an Air Policy for the past year; he has written to everybody in the United States he could think of, except General Patrick and Admiral Moffett, asking for suggestions to be incorporated in the Gardner (copyrighted) National Air Policy. What he has obtained thus far is a conglomerate layout of constitution, by-laws, rules, regulations, and suggestions that pertain to governmental aviation, commercial aviation, industrial aviation, and civilian aviation.

"There is nothing new in Mr. Gardner's suggested policy. Some of it is pending legislation, some is actually in effect in the Government Air Services; and some of it is a little ahead of the game and is the subject of many heated discussions.

"There is no denying that it is Mr. Gardner's perfect right to foster this policy propaganda, and open his columns to a discussion of the advisability of establishing a Secretaryship for Air, but the regrettable fact is that Mr. Gardner has left his readers under the impression by iterating and reiterating his slogan—"There is no Air Policy"—that the Chief of Air Service and Chief of Bureau of Aeronautics am mainly responsible.

"Mr. Gardner is not fair-minded enough to clarify his meaning, but leaves the impression that American aviation is in the hands of imbeciles who have utterly failed in the administration of their offices, and squandered the funds appropriated for aviation purposes.

"It is astonishing that aviation in the United States is enjoying the popular favor of the people when it is considered that one of the few papers in this country devoted to aviation prefers using its pages to besmirch the efforts of the officials of the Government who are at present administering its aviation policies. This also is his American privilege, but we, the poor dumb public, have been laboring under the impression that his magazine was for the promotion of aviation. Nothing could be further from the truth. 'Aviation' magazine is primarily for the promotion of L.D.G.

"The visit of C. G. Grey to this country as the guest of Mr. Gardner was a revelation. Up to that time we had enjoyed Mr. Grey's clever manner of poking fun at the British Air Ministry. We were lead to believe from his frank manner of expression that most of the thinking for his articles was done by C. G. Grey. Imagine our chagrin on reading his 'Impression of Aviation in America,' written before he saw Dayton, to find that he has discovered that the 'Army seems to suffer from a place called McCook Field. Like the R.A.F. (Royal Air Force), McCook Field, costs millions of money and produces nothing.

"In a previous issue of 'Aviation,' Mr. Gardner is announcing the visit of C. G. Grey states: 'It will be a great pleasure and an opportunity to open the columns of 'Aviation' to his observations. We only hope that he will not feel that his status as a guest limits his free expression. So far as 'Aviation' is concerned, it hopes and looks for straight from the shoulder hitting and welcomes it.

"Doesn't it seem significant that Mr. Grey started to 'hit from the shoulder' before he had an opportunity to get any person's version of these issues except L. D. Gardner's?

"Quoting Mr. Grey: 'Like the R.A.F., McCook Field spends good money, which if it were allowed to the industry would provide the flying personnel with better aircraft, and more of them.'

"It would be just as asinine to attempt to answer this statement without a thorough investigation, and some ridiculous assumptions, as it is to make it.

"Quoting: 'Furthermore, McCook Field, still more like our R.A.F., cramps the style of industrial firms by delay in approving or disapproving trade designs and so delaying the placing of orders and consequent organization for output.'

"As to the statement itself, it carries the usual Gardner characteristics of inaccuracy and McCook Field hate.

"As a guest, Mr. Grey has proved himself a very safe and accommodating comedian. As a fearless editor, who appreciates the sanctity of uncontrolled thought, C. G. Grey has proven himself on his visit to America a total 'wash out.'

"We will tell you more of these 'gold dust twins' in the January issue of *Slipstream*, which magazine Mr. Gardner thinks ought not to be in existence because it is the only asserting voice of McCook Field and Dayton."

The Aircraft Service Directory

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INDEX TO ADVERTISERS

A

Aircraft Service Directory 58 59
Angle, Glenn D 58
Atlantic Aircraft Corporation 63

B

Boeing Airplane Co 64

C

Champion Spark Plug Co 63
Classified Advertising 59
Columbia Aircraft Corporation 59
Curtiss Aeroplane & Motor Co 38

E

Ericson Aircraft Ltd 59
Ericson, F G 59

H

Hamilton Aero Mfg Co 58
Huff Daland Aero Corp 58

I

Ireland, G S 58

J

Johnson Airplane & Supply Co 61
Johnson Motor Products Co 59

L

Lacoblin, Etablissements 62
Loening Aeronautical Eng Corpn 39
Longmans, Green & Co 62
Ludington, C T 63
Ludington Exhibition Co 58

M

Martin, The Glenn L, Co 60

N

New York University 58
Northrop, Marvin A 59

O

Ostergaard Aircraft Works 58

P

Paragon Engineers, Inc 58
Pioneer Instrument Co 58

R

Roza, Art 59

S

San Antonio Airways, Inc 59
Sellers, Matthew B 59
Stewart Hartshorn Co 61
Swallow Aeroplane Mfg Co 62

T

Tips & Smith 58
Titanine, Inc 62

W

Warner, Edward P 58
Where to Fly 58
Wright Aeronautical Corp 40

Y

Yackey Aircraft Co 58

Z

Zimmermann, Paul G 58

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